

R E M A R K S

Claims 1-5, 13 and 14 are pending in this application.

Support for claim 14 can be found in claims 1, 6 and 7. No new matter has been added by way of the above-amendment.

Interview

Applicant notes with appreciation that the Examiner conducted a personal interview at the United States Patent and Trademark Office. The Examiner was very helpful in clarifying the issues.

In order to further define the present invention, Applicant has added new claim 14. Specifically, new claim 14 states:

that, in addition to the flame retardant (B) comprising at least one aromatic group-containing silicone compound of formula (1), there is also added an **additional flame retardant (C)** comprising at least one member selected from the group consisting of a metal salt flame retardant, a phosphorus-containing flame retardant, a nitrogen-containing flame retardant, a silicon-containing flame retardant other than the silicone compound (B), an inorganic flame retardant and a fibrous flame retardant, and

that the additional flame retardant (C) is added **in an amount of from 0.001 to 100 parts by weight**, relative to 100 parts by weight of said resin component (A).

New claim 14 is identical to the independent claim discussed

during the Interview. During the Interview, the Examiner looked on this embodiment of the invention with favor with respect to the pending prior art based rejections. The Examiner is respectfully requested to indicate in the next communication that new claim 14 is allowable over the prior art.

Prior Art Based Issues

Claims 1 to 4 have been rejected under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the **Serizawa patent**. The Examiner's reason for rejection is substantially the same as in the last office action. Specifically, the Examiner states as follows.

" Serizawa exemplifies (C7) a blend of PC with 4 pph of an aromatic polysiloxane. The MW of the polysiloxane is 40,000 and therefore would be expected to have the viscosity of claim 4."

Traverse is made as follows.

The Serizawa patent (U.S. Patent No. 6,001,921) discloses a flame retardant resin composition comprising a silicone resin having a phenyl group and a non-silicone resin having aromatic ring (such as an aromatic polycarbonate). As apparent from claim 1 of the Serizawa patent, the silicone resin used in the Serizawa patent has both $R_2SiO_{1.0}$ units and $RSiO_{1.5}$ units, wherein the

RSiO_{1.5} unit is a T-unit (trifunctional) (see column 6, line 1 of the Serizawa patent). That is, the silicone resin used in the Serizawa patent has a branched structure and, hence, is different from the aromatic group-containing linear silicone compound recited in claim 1 of the present application.

In this connection, it should be noted that the Applicant's observations made above have substantiated that the flame retardant used in the present invention (aromatic group-containing linear silicone compound recited in claim 1) is far superior to a flame retardant comprising a branched or crosslinked silicone compound. As substantiated by the observations made in the present specification, the use of the aromatic group-containing linear silicone compound recited in claim 1 is critical for achieving the excellent effects of the present invention, i.e., the effects that the polycarbonate resin composition obtained by the process of the present invention is advantageous not only in that it has excellent flame retardancy and excellent melt-molding stability, but also in that it can be used for producing a shaped article having excellent mechanical properties, excellent light stability and excellent appearance.

Therefore, the Serizawa patent does not teach or suggest the process of the present invention for imparting flame retardancy to an aromatic polycarbonate. Regarding this deficiency, the Examiner has taken the position that the flame retardancy would

be an **inherent** property of the polycarbonate composition.

To support an anticipation rejection based upon inherency, an Examiner must provide factual and technical grounds establishing that the inherent feature necessarily flows from the teachings of the prior art. See *Ex parte Levy* 17 USPQ2d 1461 (BOPAI 1990); see also *In re Oelrich*, 212 USPQ 323 (CCPA 1981) holding that inherency must flow as a necessary conclusion from the prior art, not simply a possible one. Applicant respectfully submits that the Examiner has not established that the flame retardancy must be found in the comparative example 7 of Serizawa.

Thus, the present invention has novelty and inventive step over the Serizawa patent.

Claims 1 to 5 have been rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the **Brown** patent. The reason for rejection is substantially the same as in the last office action. Specifically, the Examiner states as follows.

" The reference adds phenyl containing polysiloxane to PC. The amount of aromaticity can vary depending on the value of X and Y.

Regarding claim 3, use of any two polysiloxanes within the scope of the reference would be *prima facie* obvious (see MPEP 2144.06 'combining equivalents').

Inherently, flame retardance must be imparted to

the PC."

Traverse is made as follows.

The Brown patent (U.S. Patent No. 4,390,651) discloses a polycarbonate composition comprising in admixture an aromatic polycarbonate and a phenyl-containing organopolysiloxane fluid.

However, in the Brown patent, the phenyl-containing organopolysiloxane fluid is used as a mold release agent. This is apparent from, for example, the following description of the Brown patent.

"Small amounts of the present phenyl-containing organopolysiloxanes achieve excellent results of mold release during the molding of the composition."
(emphasis added) (see column 6, lines 4 to 6 of the Brown patent)

Further, attention is drawn to the fact that the Brown patent has no description about flame retardancy. In the working examples of the Brown patent, only the volatility of the phenyl-containing organopolysiloxane fluid (in Example 4) and the mold release property of the polycarbonate resin composition (in Example 5) are evaluated (see column 7, lines 44 to 47 and column 8, lines 10 to 12 of the Brown patent).

Thus, the Brown patent does not teach or suggest that the aromatic group-containing silicone compound recited in claim 1 of the present application is effective for imparting flame retardancy to an aromatic polycarbonate. As already

substantiated by the Applicant's observations made in the present specification, the use of the aromatic group-containing linear silicone compound recited in claim 1 is critical for achieving the excellent effects of the present invention, i.e., the effects that the polycarbonate resin composition obtained by the process of the present invention is advantageous not only in that it has excellent flame retardancy and excellent melt-molding stability, but also in that it can be used for producing a shaped article having excellent mechanical properties, excellent light stability and excellent appearance.

Therefore, the Brown patent does not teach or suggest the process of the present invention for imparting flame retardancy to an aromatic polycarbonate. Also, Applicant respectfully submits that the Examiner has not established that the flame retardancy must be found in the polycarbonate composition of Brown.

The present invention has novelty and inventive step over the Brown patent.

Claims 1 to 4 and 13 have been rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the **Sakano patent**. The reason for rejection is substantially the same as in the last office action. Specifically, the Examiner states as follows.

" Sakano exemplifies (#2,4) blends of PC, polymethylphenyl siloxane and optionally ABS. The MW of the siloxane is 25,000 which is believed to correspond to a viscosity above 100 cst. Sakano gives a general range of 10-100,000 cst (col. 3 line 1). Inherently, the siloxane must impart flame retardancy."

Traverse is made as follows.

The Sakano patent (U.S. Patent No. 4,305,856) discloses a thermoplastic resin composition excellent in heat cycle property, which comprises a polycarbonate resin, an ABS type resin and an organo-silicon compound.

In the Sakano patent, the polymethylphenyl siloxane is mentioned as one of the examples of organo-silicon compounds. However, in the Sakano patent, the polymethylphenyl siloxane is used for improving heat cycle property of a plated product produced by plating a molded product of a polycarbonate resin composition. This is apparent from, for example, the following descriptions of the Sakano patent.

"As a result of an extensive study, it has now been found that a thermoplastic resin composition comprising a polycarbonate resin or its blend mixture with an ABS type resin and an organo-silicon compound can afford a molded product suitable for metal plating, and the plated product resulting therefrom shows an excellent heat cycle property." (emphasis added) (see column 1, lines 44 to 50 of the Sakano patent)

With respect to the "heat cycle property", reference is made

to the following explanation made in the Sakano patent.

"In metal-plated plastic products, undesirable "blistering" is frequently observed between the surface of the plastic substrate and the metallic film plated thereon. This is because the difference between the plastic substrate and the metallic film in coefficient of linear expansion is so great that they are forced to separate each other due to the change of environmental conditions, particularly the change of temperature. The characteristics of plastics, plastic products or plated plastic products relating to such blistering is called "heat cycle property". (see column 1, lines 10 to 20 of the Sakano patent)

That is, the "heat cycle property" is a capability to suppress "blistering" which is observed between the surface of the plastic substrate and the metallic film plated thereon and which is caused by the large difference in coefficient of linear expansion between the plastic substrate and the metallic film.

It is apparent for those skilled in the art that such "heat cycle property" has no relation to the flame retardancy.

In this connection, attention is drawn to the fact that the Sakano patent has no description about flame retardancy. In the working examples of the Sakano patent, only the heat cycle property is evaluated (see Table 1 on the page containing columns 3 and 4 of the Sakano patent).

Further, in the Sakano patent, the polymethylphenyl siloxane is mentioned simply as one of the examples of organo-silicon compounds which include not only aromatic group-containing

siloxanes (such as polymethylphenyl siloxane), but also silanes (such as tetraethylsilane) and siloxanes containing no aromatic groups (such as polydimethylsiloxane) (see column 2, lines 49 to 68). That is, the Sakano patent equates aromatic group-containing siloxanes with silanes and siloxanes containing no aromatic groups.

Thus, the Sakano patent does not teach or suggest that the aromatic group-containing silicone compound recited in claim 1 of the present application is effective for imparting flame retardancy to an aromatic polycarbonate. As already substantiated by the Applicant's observations made in the present specification, the use of the aromatic group-containing linear silicone compound recited in claim 1 is critical for achieving the excellent effects of the present invention, i.e., the effects that the polycarbonate resin composition obtained by the process of the present invention is advantageous not only in that it has excellent flame retardancy and excellent melt-molding stability, but also in that it can be used for producing a shaped article having excellent mechanical properties, excellent light stability and excellent appearance.

Therefore, the Sakano patent does not teach or suggest the process of the present invention for imparting flame retardancy to an aromatic polycarbonate. Also, Applicant respectfully submits that the Examiner has not established that the flame

retardancy must be found in the polycarbonate composition of Sakano.

Thus, the present invention has novelty and inventive step over the Sakano patent.

Claims 1 to 5 and 13 have been rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the **J09087504 patent**. The reason for rejection is substantially the same as in the last office action. Specifically, the Examiner states as follows.

" The reference exemplified (#1-3) blends of PC, polycarbonate and SH710. SH710 is a polymethylphenylsiloxane having viscosity of 500 cst and 40% phenyl substituents (see Gokan...). Inherently, SH710 must impart flame retardancy.

Regarding claim 3, the use of any two polysiloxanes within the scope of the reference would be *prima facie* obvious (see MPEP 2144.06 'combining equivalents')."

The Examiner also states as follows:

" Applicant argues Brown, J' 504 and Sakano lack any description of flame retardancy.

The cited art must exhibit flame retardancy. These references combine the same materials called for by applicant. Claiming an inherent property of a previously known composition is no basis for patentability. (MPEP 2112)."

Traverse is made as follows.

The J09087504 patent discloses a polycarbonate resin composition comprising (A) a polycarbonate resin, (B) a phenyl

group-containing silicone oil, and (C) polycaprolactone.

However, in the J09087504 patent, the phenyl group-containing silicone oil is used as a lubricant (sliding property improver). This is apparent from, for example, the following descriptions of the J09087504 patent.

"[Task] It is a task of the present invention to provide a polycarbonate resin composition having excellent sliding properties without a sacrifice of impairing good transparency which a polycarbonate resin inherently possesses" (emphasis added) (see page 1, the bottom line to page 2, line 3, [Abstract] of Exhibit 3)

"[0004] The present inventors have made extensive and intensive studies toward solving the above-mentioned problems. As a result, the present inventors have found that when a polycarbonate resin is blended with a specific silicone oil and a specific amount of polycaprolactone, a polycarbonate resin having improved sliding properties can be obtained without sacrifice of impairing good transparency which a polycarbonate resin inherently possesses. The present invention has been completed, based on this finding." (emphasis added) (see page 6, paragraph [0004] of Exhibit 3)

Further, attention is drawn to the fact that the J09087504 patent has no description about flame retardancy. In the working examples of the J09087504 patent, only the "Dynamic friction" (yardstick for evaluation of the sliding properties) and the "Light transmission" are evaluated (see page 15, line 3 from the bottom to page 16, line 11, paragraph [0026] of Exhibit 3).

Thus, the J09087504 patent does not teach or suggest that the aromatic group-containing silicone compound recited in claim 1 of the present application is effective for imparting flame

retardancy to an aromatic polycarbonate. As already substantiated by the Applicant's observations made in the present specification, the use of the aromatic group-containing linear silicone compound recited in claim 1 is critical for achieving the excellent effects of the present invention, i.e., the effects that the polycarbonate resin composition obtained by the process of the present invention is advantageous not only in that it has excellent flame retardancy and excellent melt-molding stability, but also in that it can be used for producing a shaped article having excellent mechanical properties, excellent light stability and excellent appearance.

Therefore, the J09087504 patent does not teach or suggest the process of the present invention for imparting flame retardancy to an aromatic polycarbonate. Also, Applicant respectfully submits that the Examiner has not established that the flame retardancy **must** be found in the polycarbonate composition of J09087504.

Thus, the present invention has novelty and inventive step over the J09087504 patent.

From the foregoing, it is apparent that any of the cited references has no teaching or suggestion about the essential features of the present invention and effects thereof.

It is believed that the present application is now in

condition for allowance.

Reconsideration and early favorable action on the claims are earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Garth M. Dahlen, Ph.D. (Reg. No. 43,575) at the telephone number of the undersigned below.

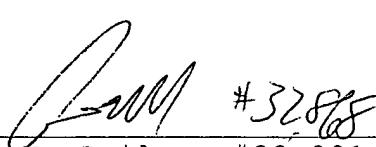
Attached hereto is a marked-up version of the changes made to the application by this Amendment.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By


John W. Bailey, #32,881

JWB/GMD:jmb
0216-0445P

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000